



## **Theater Insulation** with *ECOSE®* Technology

- Wall and Ceiling Liner M
- Black Acoustical Board
- Insulation Board



# Theater Insulation with ECOSE® Technology

**Knauf Insulation Theater Insulation products provide acoustical as well as thermal insulation to walls and ceilings of theaters, sound studios and auditoriums.**

## Wall and Ceiling Liner M with ECOSE Technology

### DESCRIPTION

Knauf Insulation Wall and Ceiling Liner M with ECOSE Technology is a brown flexible glass mineral wool blanket with a black mat facing adhered to one surface. It provides thermal and acoustical insulation while a smooth, tough surface resists damage during installation.



### APPLICATIONS

Knauf Insulation Wall and Ceiling Liner M with ECOSE Technology is designed for use as an acoustical and visual barrier for walls and ceilings where a black surface is required. It is primarily used in theaters, sound studios, public concourses and other areas where acoustical treatment is needed. It is intended to be mechanically fastened to walls and can be covered with fabric or draping, or suspended above linear metal and metal pan ceiling systems to serve as both a visual and acoustical treatment.

### TECHNICAL DATA

#### Surface Burning Characteristics (UL Classified)

- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E84 and UL 723

#### Indoor Air Quality

- UL Environment
  - GREENGUARD certified
  - GREENGUARD Gold certified

#### Corrosiveness (ASTM C665)

- Does not accelerate corrosion on steel

#### Corrosion (ASTM C1617)

- Pass

## Black Acoustical Board with ECOSE Technology

### DESCRIPTION

Knauf Insulation Black Acoustical Board with ECOSE Technology is a heavy density glass mineral wool board insulation made with ECOSE Technology. The base board is brown with a black mat applied to provide a smooth tough finish.



### APPLICATIONS

Knauf Insulation Black Acoustical Board with ECOSE Technology is designed for use as acoustical insulation and/or visual barrier on walls and ceilings, where system design requires a rigid product and where additional strength and abuse resistance are required. The black surface provides a visual barrier with an aesthetic appearance, in both wall and ceiling applications. The product is typically used where framing members are not present.

### TECHNICAL DATA

#### Surface Burning Characteristics (UL Classified)

- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E84, NFPA 255 and UL 723

#### Indoor Air Quality

- UL Environment
  - GREENGUARD certified
  - GREENGUARD Gold certified

#### Corrosiveness (ASTM C665)

- Does not accelerate corrosion on steel

#### Corrosion (ASTM C1617)

- Pass

## Insulation Board with ECOSE Technology

### DESCRIPTION

Insulation Board with ECOSE Technology from Knauf Insulation is a thermal and acoustical insulation product made from inorganic glass fibers preformed into boards. The board is available plain, with a factory applied foil-scrim-kraft (FSK) facing, with a factory-applied all service jacket (ASJ) or with a factory applied metalized polypropylene-scrim-kraft jacket (PSK).



### APPLICATIONS

Insulation Board with ECOSE Technology from Knauf Insulation is a versatile product for use on metal and masonry walls, wall and roof panel systems, curtain wall assemblies and cavity walls.

### TECHNICAL DATA

#### Surface Burning Characteristics (UL Classified)

- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with NFPA 90A and 90B, ASTM E84, NFPA 255 and UL 723 and CAN/ULC S102

#### Indoor Air Quality

- UL Environment
  - GREENGUARD certified
  - GREENGUARD Gold certified

#### Corrosiveness (ASTM C665)

- Does not accelerate corrosion on steel

#### Corrosion (ASTM C1617)

- Pass

### Wall and Ceiling Liner Sound Absorption Coefficients | ASTM C423, Type A Mounting

| Type                               |              | Octave Band Center Frequency (cycles/sec.) |      |      |      |      |      |      |
|------------------------------------|--------------|--|------|------|------|------|------|------|
|                                    |              | 125  | 250  | 500  | 1000 | 2000 | 4000 | NRC  |
| 1.5 PCF<br>(24 kg/m <sup>3</sup> ) | 1" (25 mm)   | 0.18                                       | 0.28 | 0.73 | 0.85 | 0.91 | 0.90 | 0.70 |
|                                    | 1.5" (38 mm) | 0.23                                       | 0.50 | 0.87 | 0.92 | 0.93 | 0.93 | 0.80 |
|                                    | 2" (51 mm)   | 0.37                                       | 0.76 | 1.02 | 1.00 | 0.98 | 0.92 | 0.95 |
| 2.0 PCF<br>(32 kg/m <sup>3</sup> ) | 0.5" (13 mm) | 0.10                                       | 0.17 | 0.43 | 0.59 | 0.73 | 0.75 | 0.50 |
|                                    | 1" (25 mm)   | 0.25                                       | 0.35 | 0.69 | 0.89 | 0.96 | 1.01 | 0.70 |
|                                    | 1.5" (38 mm) | 0.27                                       | 0.55 | 0.87 | 0.99 | 1.00 | 0.98 | 0.85 |

Available in 48" (1,219 mm) wide rolls in lengths of 100' or 50' (30.48 or 15.24 m).  
Contact your Knauf Insulation Territory Manager for additional information.

### Black Acoustical Board Sound Absorption Coefficients | ASTM C423, Type A Mounting

| Density                             |  | Thickness   | Octave Band Center Frequency (cycles/sec.) |      |      |      |      |      |      |
|-------------------------------------|--|-------------|--|------|------|------|------|------|------|
|                                     |  |             | 125  | 250  | 500  | 1000 | 2000 | 4000 | NRC  |
| 2.25 PCF<br>(36 kg/m <sup>3</sup> ) |  | 2" (51 mm)  | 0.26                                       | 0.62 | 1.05 | 1.07 | 1.04 | 1.05 | 0.95 |
| 3.0 PCF<br>(48 kg/m <sup>3</sup> )  |  | 1" (25 mm)  | 0.13                                       | 0.24 | 0.56 | 0.83 | 0.92 | 0.98 | 0.65 |
|                                     |  | 1½" (38 mm) | 0.19                                       | 0.41 | 0.89 | 1.02 | 1.03 | 1.04 | 0.85 |
|                                     |  | 2" (51 mm)  | 0.33                                       | .67  | 1.07 | 1.07 | 1.03 | 1.06 | 0.95 |

Available 24" (610 mm) wide x 48" (1,219 mm) long.

### Insulation Board Sound Absorption Coefficients | ASTM C423, E795, Type A Mounting

| Type                                |       |             | Octave Band Center Frequency (cycles/sec.) |      |      |      |      |      |      |
|-------------------------------------|-------|-------------|--|------|------|------|------|------|------|
|                                     |       |             | 125  | 250  | 500  | 1000 | 2000 | 4000 | NRC  |
| 2.25 PCF<br>(36 kg/m <sup>3</sup> ) | FSK   | 1" (25 mm)  | 0.05                                       | 0.24 | 0.59 | 0.86 | 0.97 | 1.00 | 0.65 |
|                                     |       | 1½" (38 mm) | 0.17                                       | 0.49 | 0.93 | 1.03 | 1.03 | 0.99 | 0.85 |
|                                     |       | 2" (51 mm)  | 0.26                                       | 0.62 | 1.05 | 1.07 | 1.04 | 1.05 | 0.95 |
| 3.0 PCF<br>(48 kg/m <sup>3</sup> )  | Plain | 1" (25 mm)  | 0.08                                       | 0.23 | 0.62 | 0.88 | 0.96 | 0.99 | 0.65 |
|                                     |       | 1½" (38 mm) | 0.09                                       | 0.39 | 0.89 | 1.03 | 1.06 | 1.01 | 0.85 |
|                                     |       | 2" (51 mm)  | 0.29                                       | 0.65 | 1.11 | 1.13 | 1.06 | 1.03 | 1.00 |
|                                     |       | 3" (76 mm)  | 0.54                                       | 1.01 | 1.18 | 1.07 | 1.07 | 1.04 | 1.10 |
|                                     |       | 4" (102 mm) | 0.95                                       | 1.11 | 1.17 | 1.07 | 1.07 | 1.06 | 1.10 |
|                                     | FSK   | 1" (25 mm)  | 0.21                                       | 0.63 | 0.84 | 0.93 | 0.51 | 0.22 | 0.75 |
|                                     |       | 1½" (38 mm) | 0.45                                       | 0.60 | 0.99 | 0.73 | 0.53 | 0.27 | 0.70 |
|                                     |       | 2" (51 mm)  | 0.67                                       | 0.77 | 0.93 | 0.74 | 0.47 | 0.28 | 0.75 |

Available in widths of 24" (610 mm) and 48" (1,219 mm) and lengths of 36" (915 mm) to 120" (3,048 mm).

### ECOSE® TECHNOLOGY

ECOSE Technology is a revolutionary binder chemistry that enhances the sustainability of our products. The "binder" is the bond that holds our glass mineral wool product together and gives the product its shape and brown color. ECOSE Technology is a plant-based, sustainable chemistry that replaces the phenol/formaldehyde (PF) binder traditionally used in glass mineral wool products. Products using ECOSE Technology are formaldehyde-free and have reduced global warming potential when compared to our products of the past.

### SUSTAINABILITY

Knauf Insulation's products used for thermal insulating purposes recover the energy that it took to make them in just hours or days, depending on the application. Once installed, the product continues to save energy and reduce carbon generation as long as it is in place.

- Glass mineral wool insulation with ECOSE Technology contains three key ingredients:
- Recycled glass content, verified every six months by UL Environment
- Sand, one of the world's most abundant resources
- Our green chemistry initiative ECOSE Technology, which is validated to be formaldehyde-free

### GLASS MINERAL WOOL AND MOLD

Glass mineral wool insulation will not sustain mold growth. However, mold can grow on almost any material when it becomes wet and contaminated. Carefully inspect any insulation that has been exposed to water. If it shows any sign of mold it must be discarded. If the material is wet but shows no evidence of mold, it should be dried rapidly and thoroughly. If it shows signs of facing degradation from wetting, it should be replaced.

# KNAUFINSULATION



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## NOTES

The chemical and physical properties of the Knauf Insulation products Wall and Ceiling Liner M, Black Acoustical Board and Insulation Board Insulation with ECOSE Technology represent typical average values determined in accordance with accepted test methods.

The data is subject to normal manufacturing variations. The data is supplied as a technical service and is subject to change without notice.

References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

Check with your Knauf Insulation Territory Manager to ensure information is current.



### UL Environment GREENGUARD Certification Program

Theater Insulation products are certified to UL Environment GREENGUARD standards for low chemical emissions into indoor air during product usage.

### UL Environment GREENGUARD Gold Certification Program

Knauf Insulation has achieved UL Environment GREENGUARD Gold Certification for Theater Insulation products.

For more information, visit [ul.com/spot](http://ul.com/spot)



### LEED Eligible Product

Use of this product may help building projects meet green building standards as set by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

### LEED v2009

MR Credit 4.1 - 4.2 Recycled Content  
MR Credit 5.1 - 5.2 Regional Materials

### LEED v4

Knauf Insulation offers several products for both envelope and mechanical systems that have ingredient disclosure and transparency. Please contact [transparency@knaufinsulation.com](mailto:transparency@knaufinsulation.com) for products that currently contribute to MR credits.



This product has been tested and is certified to meet the EUCEB requirements.